118 grains of calcium lactate, or in 160 grains of calcium gluconate.

SUMMARY

In normal nutrition, calcium, phosphorus and vitamin D are inseparably associated. Of these vitamin D chiefly, and calcium to a lesser extent, are likely to be supplied in insufficient quantities. Throughout the whole growth period vitamin D should be added to the diet. Calcium can be obtained in sufficient amounts only by the ingestion of milk and milk products.

Pregnant and lactating women should be given 2 drachms of cod liver oil or 10 minims of viosterol or oleum percomorphum while taking approximately 1.5 grams of calcium (40 ounces of milk) in the diet daily. Infants and growing children should receive 1 to 2 drachms of cod liver oil or its vitamin D equivalent daily during the eight winter months. Growing children should take at least 30 ounces of milk every day, thus ensuring an intake of 1 gram of calcium. The adult should take at least 0.6 grams of calcium, the addition of small doses of vitamin D sometimes being desirable.

Retrospect

A REVIEW OF RECENT LITERATURE ON NEUROSES AND PSYCHONEUROSES*

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"Neuroses and psychoneuroses" are names given to certain ill-defined syndromes labelled hysteria, neurasthenia, psychasthenia, anxiety neuroses and so forth. As to their origin, their nature, and the mechanisms at work there is much diversity of opinion. From a survey of the available literature of the past few years, however, one may safely conclude that the general trend of opinion is psychobiological, abandoning the dualistic conception of mind and body as distinct entities, and stressing the organism as a whole. In the following sketch various points of view, from the reflex to the psychoanalytic, will be outlined as briefly as is consistent with clarity.

Pavlov concludes from his experiments on dogs that the cerebral hemispheres are the organs which, by means of stimulative and inhibitive cortical processes, balance the whole organism with its environment; and this bio-adaptation or balancing is attained by forming various positive and negative (*i.e.*, inhibitive) conditioned reflexes. Dogs trained to positive conditioned reflexes were put into "experimental neurosis", *i.e.*, languor or drowsiness (inhibitive) or general motor excitement by means of many contradictory signals. To what extent is one justified in applying this theory to human beings with their rich emotional life? Millais Culpin cites a case demonstrating that a conditioned reflex can be associated with mental processes below the level of consciousness. Ivan-Smolensky[1] draws a parallel between the results of Pavlov's experiments and the results of difficult or horrifying human conditions in which there is abrupt disturbance or disharmony between cerebral stimulation and inhibition leading to neuroses.

Wallace Marshall[2] writes of psycho-allergy a term indicating hypersensitivity of the emotional system to various stimuli which are psycho-allergens. How this hypersensitivity is acquired he does not state. Modern literature, according to Wittkower,[3] is dominated by the allergic hypothesis, *i.e.*, susceptibility to noxious allergens. Attacks of asthma may be brought on by psychological disturbance, the affect being discharged upon the nervous system and mobilizing the well-adjusted mechanism of the asthma attack. This last phrase is very significant, suggesting a similarity to Pavlov's reflex theory.

As regards gastro-intestinal neuroses Wittkower gives instances of the conditioning of functional derangements through "imagination", the trauma involving an objective impression. A girl who had seen a man disembowelled in a railway accident vomited every morning for six months. Many instances of this conditioning can be found in the records of war neuroses.

Velikowsky[4] writes of psychic anaphylaxis and somatic determination of the affects. Psychic anaphylaxis is described as that special sensitivity to an agent which has at one time happened to act on the individual and which when again experienced causes a second reaction far exceeding the first in intensity. The action of the first agent may be called sensitization, that of the second activation. Velikowsky claims that it is not simply the fixation of childhood memories which causes the outbreak of a neurosis. Activation by a subsequent experience even many years later, not necessarily identical with the sensitizing agent, being necessary. Fear being a defensive mechanism, he likens the tremor, rapid heart, excretion of urine and fæces, etc., to the defensive actions of animals, these manifestations according to this conception having been possibly useful in an earlier phylogenetic stage.

Porter Phillips'[5] statement that every organic bodily change must have its psychological correlate and vice-versa goes far toward the

* Read before the Ontario Neuro-Psychiatric Association, November, 1937, and before the Psychiatric Section, Montreal Medico-Chirurgical Society, March, 1938.

modern conception of the unity of the organism as set forth in the later writings of Jelliffe and White and others. Phillips considers also that each form of temperament has a physiological basis of its own, citing Kretschmer's types, the individual of the extravert type of build being more liable to hysterical reactions or mania or melancholia, and the build of introvert type to psychasthenia or dementia præcox.

Kretschmer believes that hysterical persons are generally of a primitive type of mind; that an hysterical habit does not occur as a rule in reasoning, worldly-inclined ambitious persons. In such persons it would seem that biological tendencies, blocked as they are by our code of ethics and morality, find outlet or sublimation in the strivings of the individual.

The vegetative nervous system is the subject of a short editorial in the *Medical Press and Circular* (February 16, 1938). The present view held by physiologists is that the parasympathetic is anabolic and the sympathetic catabolic. Most of the symptoms attributable to the vegetative nervous system arise from imbalance between the two systems. It is essential to recognize the reaction picture of this imbalance. This may be accomplished by ordinary medical examination, and by certain pharmaco-dynamic tests.

The editorial states that the passage from childhood to old age is accompanied by a gradual transformation from a parasympathetic hypertonia to a sympatheticotonia. The climacteric is associated with a vagotonia, but this may be due to endocrine imbalance. The recognition of vegetative reaction pictures offers a promising field for therapeutic enterprise.

Recent publications of the Research Department of the Boston State Hospital (Myerson and others) detail experiments with drugs on the human autonomic nervous system. The theory is accepted that this system manufactures chemical substances which regulate visceral activity. Autonomic activity is the resultant of three sets of chemical substances.—(1) Sympathin, the active agent in bringing about adrenergic effects; (2) acetylcholine, produced mainly by parasympathetic neurons, acting as balance to sympathin; (3) cholinesterase, an enzyme which destroys or hydrolyzes the choline. Details are given of the effects of acetyl-methylcholine on the basis of parasympathetic stimulation, too numerous to be cited in this paper.

In Langdon Brown's[6] opinion the endocrine make-up of the individual can influence the emotions, and, vice-versa, a reciprocal relationship in which the autonomic nervous system participates. He quotes a theory advanced by Dale and Hopkins to the effect that stimuli produce a chemical substance which translates these stimuli to the tissues, a chemico-biological theory mainly physiogenic.

Fetterman,[7] writing of the correlation of psychic and somatic disorders draws attention to the recent tendency to abandon the concepts psychic and somatic, mental and morphological, and functional and organic as distinct and opposite, and to think of the patient as a whole. A sketch of the anatomy and functions of the diencephalon and the vegetative nervous system may serve as a basis for understanding the relationship between the psyche and the soma. He reminds us of organic disease associated with neurotic-like symptoms; that in certain illnesses (tuberculosis, anæmia) there may be toxic factors that disturb the emotional balance, and that a marked fear reaction may, through psychic complaints, obscure an organic disease. Disorders of the diencephalon occurring after encephalitis may produce catabolic changes such as difficulties in respiration, disturbance in heart beat, digestive upsets, and other disturbances resembling neurosis.

Under the heading "Psychic influences causing physiological and structural changes", he cites Moschowitz; essential hypertension, exophthalmic goitre, gastric and duodenal ulcer, cardiospasm, irritable or spastic colon, mucous colitis are but exaggerations of human function; they are essentially human diseases and cannot be reproduced experimentally in animals; they rarely occur before the emotive and affective powers are fully developed, and their incidence bears a strong relation to world crises or great emotional waves.

As the two outstanding views as to the nature of the neuroses he considers Adolf Meyer's psycho-biological concept in which the chief stress is placed on the conscious life experiences of the individual (frustrations, disappointments, etc.), and Freud's theory that neuroses arise out of unresolved conflicts in the subconscious mind. Finally, he cites a quotation attributed to Plato, written about 2,500 years ago—"For this is the error of our day in the treatment of the human body that physicians separate the soul from the body."

McFarland and Barach[8] have conducted a series of experiments with groups of psychoneurotics and normals under diminished oxygen. The former were more sensitive, showing signs of fatigue and exhaustion, 70 per cent having collapsed in an atmosphere of 10 per cent oxygen, whereas this occurred only in 14 per cent of the control subjects. Extreme variations in pulse and blood pressure took place previous to or accompanying the collapse. In this connection may be cited Hess's theory that the oxygen exchange between the alveolar air and blood is promoted by sympathetic and inhibited by vagus action. The authors conclude, accordingly, that psycho-neurotics, through their constant emotional stress may develop an unsteady organic state and are constantly involved in a struggle to maintain

"homœostasis" or "steady state" of the fluid matrix.

Myerson[9] sketches a plan of evolution of the symptomatology of the neuroses and psychoneuroses based on the observation of a large number of cases. He excludes hysteria as belonging to a different category, for a reason not stated. Beginning with reaction to difficulty or fatigue or frustration in a normal individual, in a vulnerable person he describes a gradual decline to depression, loss of sense of reality, falsification of reality and delusions, a condition which he names neuropsychosis.

Among various conditions tending to bring on a neurosis Myerson stresses the fatigue incident to modern life induced by want of rest and excitement, and the conflict arising from the clash of two forces, the aphrodisiac and the anaphrodisiac, namely sexual appeal in the movies, at the beaches and in the magazines and sexual stories, and over against this the ascetic doctrines of most religions and the prohibition of the law. In a later paper Myerson describes cases in which patients with psychoneurotic symptoms have later developed a psychosis, one with anxiety neurosis, for instance, regressing into involutional melancholia. In other instances patients have swayed from neurosis to psychosis or vice-versa in the same day.

From a psychoanalytic standpoint Daniels[10] discusses neuroses associated with the gastrointestinal tract. There is, he states, a disturbance of one or both primary instincts, *i.e.*, that of self-preservation and that of race propagation. Constant elaboration of instinctual energy is going on, and the blocking of its expression in either or both respects by internal or external barriers may give rise to a neurosis. The energy blocked, not expended on environment, may have to be re-absorbed by an ego which cannot tolerate it, and may be expressed on the patient's own body and have a sexual colouring. Moreover, a more direct blocking of instinctual energy, not elaborated psychically into a psychoneurosis or psychosis, goes over directly into physical symptoms, actual neurosis, *e.g.*, anxiety neurosis or traumatic neurosis. Certain organs lend themselves particularly well to neurotic expression, namely the gastrointestinal and cardiovascular systems because of their intimate relation with the autonomic nervous system which is the medium of expression.

Anxiety neurosis is the subject of a number of interesting articles. Walter Misch[11] attributes the paraesthesias, palpitation, cold sweats, etc., to stormy excitation of the sympathetic nervous system. During the attack parasympathetic compensatory symptoms may come on. He considers it reasonable to assume a somatic source of the neurosis, *i.e.*, Freud's theory of unrelieved sexual excitation, the dammed up libido transferring itself into anxiety. Misch's analysis of a number of anxiety attacks gave the result that somatic sensations were present before the psychical. He found also that somatic anxiety can be removed by drugs which paralyze vegetative excitation, *i.e.*, pacyl, choline, and that only when it has lasted some weeks or months and has become built over into a psychoneurosis can somatic anxiety be influenced by psychotherapy.

Crichton-Miller[12] offers a much broader conception of the source of anxiety. Primitive man lived to satisfy his instinctual needs, encountering little frustration and few alternatives, whereas 20th century man, his primary needs being more or less satisfied, hardly knows what his aspirations are and is feverishly trying to choose between a great variety of indirect and partial satisfactions. Hence the difficulty in discrimination and feeling of frustration. Crichton-Miller finds anxiety more liable to occur in persons of introverted temperament in whom the symptoms are contripetal, while in extraverts the symptoms are centrifugal, and hysteria may ensue. Crichton-Miller concludes his article, "The etiology and classification of the neuroses", with very expressive key-words, *i.e.*, neurasthenia, acquired fatigability; psychasthenia, constitutional fatigability, hysteria, pose and the creative life; anxiety, fear and frustration; obsessions, the repetitive temperament; cyclothymia, constitutional rythm.

Crichton-Miller's article in the *British Journal of Medical Psychology*, July, 1937, entitled "Frontiers of psychotherapy" is very suggestive. Psychotherapy, he writes, has been cursed from the beginning by an easy assumption that functional nervous disorders are psychogenic in origin, this theory suggesting that biogenesis and psychogenesis are alternatives, whereas we are learning every day the importance of synergic etiology. The bio-psychiatrists stand for psycho-somatic unity and, accordingly, for the use of physical or psychic treatment or both as the case may require. He ridicules psychoanalysts with their psychic determinism, their scoffing attitude toward philosophy and religion, and their basic assumption that the understanding and therefore the treatment of the mind could be a matter of pure science. Most of all schools of philosophy, he writes, recognize that to know all there is to be known about the human psyche is not necessarily to understand it. Life demands art as well as science, valuation as well as observation, wisdom as well as knowledge. He suggests that the usual training of psychotherapists is unduly scientific and that a large proportion of them are deplorably ignorant of any philosophy at all. In the same Journal J. H. Vander Hoop's article, "Intuition in medical psychology", is well worth careful reading. Here however I

must refrain from abstracting his discussion of thinking versus intuition, remarking merely that although such discussion is speculative it is of practical importance.

Jelliffe[13] defines psychoanalysis as a process or method of studying or learning about fundamental reasons for human behaviour in terms of inward drives or urges in relation to the realities of the internal and external worlds. It shows in part that when men and women attempt to state their beliefs about behaviour situations they almost invariably fool themselves; they rationalize. The habit of autistic thinking is almost universal, *i.e.*, wish-fulfilling explanations of conduct. In rationalization the real reason is repressed and a conscious reason adopted. A dynamic process of repression of unconscious urgings is constantly present in human behaviour in order to meet life's conditions. The initial primary drive comes through the id, namely, that part of man's mental system which has accumulated experience with the world since life began and is present in every part of the human body, and through guidance of the ego the forces of the id become socially creative. He considers that the relationship of mental to disease processes in general must be sought in the unconscious rather than in the conscious processes.

The dynamic conception of the reaction of the organism to disease is set forth clearly by Dunbar.[19] There are two integrations, that of the organism within itself and to the environment, each modifying the other. Disease means disturbances in these two dynamic equilibria. He quotes Fritz Mohr; there is no such thing as purely psychic or purely physical illness, but only a living event taking place in a living organism which is alive only by virtue of the fact that in it psychic and somatic are united in a unity. Dunbar asks, what does the patient's symptom or disease picture mean in terms of his psycho-physical economy? Does the symptom satisfy primarily a desire for pleasure or for punishment? Against what impulses is the ego seeking defense? And here comes a practical point; sometimes a physical symptom represents the patient's last defense, and when it is removed he is forced to relinquish his last hold on reality.

Heinrich Kogerer[14] in his book on psychotherapy, reviewed in the *American Journal of Psychiatry* gives the English physician James Braid the credit of being the first to dispense with the supernatural and magic and to show that the influence exercised on the patient springs from the personality of the physician. A good psychotherapist, he says, must have a sort of constitutional quality which cannot be acquired. Every general practitioner should be able to use psychotherapy, as in every somatic illness there are emotional problems which are just as important as the physical condition, if not more so, but serious mental problems should be handled by thoroughly trained specialists.

The constitutional factors in neurosis, he considers, cannot be ignored if one considers that for certain individuals a certain type of neurotic disturbance is characteristic. Even in health one can find evidence of special sensitiveness of an organ or system of organs which become the bearer of symptoms in a neurosis. Also he notes that lasting neurotic disturbances may lead to functional and anatomical structural alterations. The understanding of sexual problems is rendered more difficult by the fact that the psychosexual experiences in both sexes are in all probability not alike, a fact which makes the handling of a patient of the opposite sex difficult. But, he says, even though the number of women physicians is increased, this problem has not been overcome.

Davidoff,[15] writing of psychotherapy in neurotic patients with somatic disease, finds it frequently impossible to decide which is the predominating factor in the case, the neurosis or the organic lesion, *i.e.*, whether the organic factors are responsible for the neurosis or vice versa. It is best, he considers, to consider the two factors as part of the total picture, not as separate but as interdependent and influencing one another. A conservative psychiatric approach to these patients is necessary. Two illustrative cases are described.

Ernest Jones,[16] in his article, "The unconscious mind and medical practice", defines the unconscious mind as representing our inborn instincts as they first manifest themselves in the dawning mind of the infant. In the contact between the instincts and the outer world difficulties and conflicts arise from the start. The apprehending of reality is preceded by a period in which the mind is ruled by fantasies incredibly grotesque. Anxiety is dominant, an expression of the fear instinct, and the mental mechanisms of that period build up defences against it which play an extremely important part in later life. When these mechanisms act imperfectly or break down the underlying anxiety breaks through and there is mental pain and misery.

Various reasons are given for the neglect by physicians of the psychological factors in illness, the chief being that physicians, like their patients, are human beings; without being aware of it they shrink from the unconscious mind and have built up their life on a basis of more or less protection against it.

The psychopathology of the neuroses is summed up briefly as follows. Neurotic manifestations are only the visible symptoms of an excessive inner tension, proceeding from an unresolved conflict which has been stirred to fresh activity by some current situation. In the conflict the important elements are sexuality, aggression, fear and love, involved in an

extremely complicated fashion. Thwarted and repressed impulses provide the active dynamic urge that starts everything going. These meet with opposition from other instinctive attitudes and conflict results. The function of a neurosis, accordingly, is to retain in an unaltered infantile form certain repressed impulses, and also to keep at bay the anxiety and distress accompanying them. There may result a state of inhibition, a phobia, for instance, or permanent sexual frigidity or a sexual perversion. These and other restrictions may be cheerfully borne if only the impulses they cover are kept out of consciousness. It follows logically, then, that the patient may not want to give up the protection of a neurosis; that what disturbs him is not the symptoms themselves so much as the feeling that his inner defensive systems are breaking down. What brings him for help is the need of having his defences strengthened. And the easiest way for doctor and patient is to get away as far as possible from the underlying emotions, to deny their significance, and to strengthen the patient's "will power". This plan of treatment, according to Jones, has been the aim of all methods of psychotherapy until the advent of psychoanalysis.

While the majority of psychologists and psychotherapists admit the theory of the unconscious and the workings of repressed conflicts, as briefly outlined above, the reviewer suggests that they might not accept Jones' Freudian view of the central content of the impulses as "incest and murder". The article is well worth careful study even by a disbeliever in Freud's theory of the unconscious.

Trevor Owen[17] writes a very practical and suggestive article entitled "Psychological medicine and the neuroses". He stresses the necessity of a most careful history of the patient himself, of a study of his personality, his heredity, his reactions to his conditions of life. Owen warns especially against the danger of error in chronic cases where the patient's symptoms may be attributed to a structural alteration or to some anomaly disclosed by laboratory tests. Here especially grave error may be made. "Our responsibility in this respect", he writes, "is enormous." Also, "The physician's own psychobiological nature may be the sort which can never understand psychological medicine, however excellent it may be in other fields." A striking sentence is the following. "We know by our medical and biological literature something of the way in which the human race as a whole reacts, but we are badly fooled in trying to apply general knowledge to particular persons. Let patients be our main textbooks."

Illustrations of disturbed action of the autonomic system are given, and the methods of dealing with them from the only standpoint, namely the psychobiological. The article is not very long, but is very practical and well worth careful study by any practitioner of medicine.

The late Wm. A. White[18] insists that the most powerful therapeutic agency is suggestion. The personality of the physician is all-important. But how much insight has he into the ailments of these unfortunate people? Medical education up to the present century, more especially up to the age of mental hygiene and psychoanalysis, has been almost entirely materialistic. The student has looked upon the human body as an assemblage of organs, a self-regulating machine capable of standing much abuse, and the mind as something apart. The more discerning of the profession have by restrained sympathy and intuition realized that each patient is a human being with emotions, habits, prejudices, ambitions. I would respectfully suggest that reading the English classics, the great historians, essayists, writers of fiction and poets, notably Shakespeare, with their deep and comprehending insight into human nature, would prove profitable to all who have to do with neuroses and psychoneuroses.

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